AMENDMENTS TO THE CLAIMS

1-27 (Canceled)

28. (New) An apparatus comprising:

a first counter to count a number of times a first functional unit of the apparatus is activated;

a processing unit to apply a mathematical function to yield a deterministic estimate of an overall power consumption, the mathematical function to accept inputs including a value from the first counter.

29. (New) The apparatus of claim 28, wherein

a first weighting factor is associated with the first counter;

a second counter having a second weighting factor is provided, the second counter to count a number of times a second functional unit of the apparatus is activated; and

the mathematical function accepts as additional inputs the first weighting factor, the second weighting factor and a value from the second counter.

30. (New) The apparatus of claim 28, the mathematical function to accept as additional inputs an operating voltage level of the apparatus and a current clock frequency of the apparatus.

31. (New) The apparatus of claim 28, further comprising:

at least one throttle to alter the overall power consumption of the apparatus, wherein

the at least one throttle is activated if the deterministic estimate of an overall power consumption exceeds a first threshold power level, and

the at least one throttle is deactivated if the deterministic estimate of an overall power consumption falls below a second threshold power level.

32. (New) The apparatus of claim 31 wherein the first threshold power level and the second threshold power level are the same.

33. (New) The apparatus of claim 28 wherein the first functional unit is one of a floating point unit, a cache unit, and an instruction decoding unit.

34. (New) The apparatus of claim 28 wherein the mathematical function accepts as an additional input at least one previous deterministic power consumption estimate.

35. (New) A method comprising:

counting a number of times a first functional unit of an integrated circuit is activated and

applying a mathematical function to generate a deterministic estimate of an overall power utilization of the integrated circuit, the mathematical function accepting as an input the number of times the first functional unit was activated.

36. (New) The method of claim 35, further comprising:

adjusting the number of times the first function unit was activated by a first scaling factor;

counting a number of times a second functional unit of an integrated circuit is activated;

adjusting the number of times the second functional unit was activated by a second scaling factor; and

supplying the adjusted number of times the second functional unit was activated as an additional input to the mathematical function.

37. (New) The method of claim 35, further comprising:

supplying an operating voltage level and a current clock frequency of the integrated circuit as additional inputs to the mathematical function.

38. (New) The method of claim 35, further comprising:

reducing the operating voltage level of the integrated circuit if the estimate of the overall power utilization exceeds a first threshold, and

increasing the operating voltage level of the integrated circuit if the estimate of the overall power utilization falls below a second threshold.

39. (New) The method of claim 35, further comprising:

reducing the clock frequency of the integrated circuit if the estimate of the overall power utilization exceeds a first threshold, and

increasing the clock frequency of the integrated circuit if the estimate of the overall power utilization falls below a second threshold.

40. (New) The method of claim 35 wherein the first functional unit is one of a floating point unit, a cache unit, and an instruction decoding unit.

41. (New) A machine-readable medium containing instructions that, when executed by a machine, cause the machine to perform operations comprising:

counting a number of times a first functional unit of the machine is activated, and

applying a mathematical function to generate a deterministic estimate of an overall power utilization of the machine, the mathematical function accepting as an input the number of times the first functional unit was activated.

42. (New) The machine-readable medium of claim 41 containing instructions that, when executed by the machine, cause the machine to perform additional operations comprising:

adjusting the number of times the first function unit was activated by a first scaling factor;

counting a number of times a second functional unit of the machine is activated;

adjusting the number of times the second functional unit of the machine was activated by a second weighting factor; and

incorporating the adjusted number of times the second functional unit was activated into the estimate of the overall power utilization.

43. (New) The machine-readable medium of claim 41 containing instructions that, when executed by the machine, cause the machine to perform additional operations comprising incorporating an operating voltage level of the machine and a current clock frequency of the machine into the estimate of the overall power utilization.

44. (New) The machine-readable medium of claim 41 containing instructions that, when executed by the machine, cause the machine to perform additional operations comprising averaging the estimated power utilization with at least one previously-generated estimated power utilization.

45. (New) The machine-readable medium of claim 41 containing instructions that, when executed by the machine, cause the machine to perform additional operations comprising:

reducing an operating voltage level of the machine if the estimated overall power utilization is above a first threshold; and

increasing the operating voltage level of the machine if the estimated overall power

utilization is below a second threshold.

46. (New) The machine-readable medium of claim 41 containing instructions that, when

executed by the machine, cause the machine to perform additional operations comprising:

reducing a clock frequency of the machine if the estimated overall power utilization is

above a first threshold; and

increasing the clock frequency of the machine if the estimated overall power utilization is

below a second threshold.